

1 WHAT IS CLAIMED IS:

1. A lens control apparatus comprising:
 - 5 lens position detecting means for detecting a position of a magnification lens and a position of a focus compensation lens;
 - 10 lens moving means for moving said magnification lens and said focus compensation lens to be parallel to an optical axis;
 - 15 storage means for recording a focused position of said focus compensation lens with respect to a discrete magnification lens position in accordance with an object distance; and
 - 20 calculating means for calculating a target moving position of said focus compensation lens in accordance with the magnification lens position, the focus compensation lens position, and the discretely stored lens position information when said magnification lens is not located at the discrete magnification lens position.
- 25 2. An apparatus according to claim 1, wherein said storage means is stored in a lens control microcomputer.
- 30 3. An apparatus according to claim 1, further including automatic focus detecting means for detecting

1 a focused condition of the object and moving said focus
compensation lens to a focused point.

4. An apparatus according to claim 1, wherein
5 said calculating means estimates a target position of
said focus compensation lens in accordance with the
positions of said magnification lens and said focus
compensation lens and data adjacent to the positions
and stored in said storage means.

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5. A lens control apparatus comprising:
lens position detecting means for detecting a
position of a magnification lens and a position of a
focus compensation lens;
15 lens moving means for moving said magnification
lens and said focus compensation lens to be parallel to
an optical axis;
storage means for recording a focused position of
said focus compensation lens with respect to a discrete
20 magnification lens position in accordance with an
object distance; and
control means for inhibiting to stop said
magnification lens at a position except for the
discrete magnification lens position.

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6. An apparatus according to claim 5, wherein
said control means comprises a microcomputer, and said

1 storage means is constituted by a RAM arranged in said
microcomputer or connected to said microcomputer.

7. An apparatus according to claim 5, further
5 comprising focus condition detecting means for
detecting a focus condition of the object.

8. An apparatus according to claim 7, wherein
said control means can simultaneously control a control
10 operation of said focus compensation lens by said focus
detecting means and a focused position auxiliary
operation of said focus compensation lens along with
the zooming operation.

15 9. A lens control apparatus comprising:
a first lens for performing a magnification
operation;
a second lens for correcting movement of a focal
plane during movement of said first lens;
20 lens moving means for independently moving said
first and second lenses to be parallel to an optical
axis;
focused position storage means for prestoring a
focused position of said second lens with respect to a
25 discrete position of said first lens in accordance with
a discrete object distance;

1 object distance specifying means for specifying an
object distance on the basis of the current positions
of said first and second lenses and information stored
in said focused position storage means when manual
5 focus control is performed while a position of said
first lens is fixed; and

 focused position calculating means for calculating
a focused position of said second lens with respect to
a moving position of said first lens on the basis of
10 the object distance specified by said object distance
specifying means and the information stored in said
focused position storage means when said first lens is
moved by said lens moving means to perform a
magnification operation.

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 10. An apparatus according to claim 9, wherein
said first lens is a magnification lens, and said
second lens is a focus compensation lens.

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 11. An apparatus according to claim 10, wherein
said object distance specifying means calculates the
focus compensation lens position in accordance with the
current lens positions and information stored in said
storage means when said focus compensation lens is
25 switched from auto-focus control to manual focus
control or said focus compensation lens is driven by
the manual focus control.

1 12. An apparatus according to claim 11, further
comprising power focus means for driving said focus
compensation lens in accordance with an operation of an
operator.

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13. A lens control apparatus comprising:
a first lens for performing a magnification
operation;
a second lens for correcting movement of a focal
10 plane during movement of said first lens;
lens moving means for independently moving said
first and second lenses to be parallel to an optical
axis;
focused position storage means for prestoring a
15 focused position of said second lens with respect to a
discrete position of said first lens in accordance with
a discrete object distance;
focused position calculating means for calculating
a focused position of said second lens with respect to
20 a moving position of said first lens on the basis of
current positions of said first and second lenses and
information stored in said focused position storage
means; and
moving speed calculating means for calculating a
25 moving speed of said second lens in accordance with a
difference between the current position of said second
lens and the focused position calculated by said

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1 focused position calculating means every time said
first lens passes by the discrete position of said
first lens which is stored in said focused position
storage means during movement of said first lens.

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14. An apparatus according to claim 13, wherein
said focused position storage means comprises a table
stored in a lens control microcomputer.

10 15. An apparatus according to claim 13, wherein
said moving speed calculating means calculates a next
lens moving speed every time the discrete position is
passed.

15 16. An apparatus according to claim 15, wherein
said first lens is a magnification lens, and said
second lens is a focus compensation lens.

20 17. An apparatus according to claim 13, wherein
said first and second lenses are driven by stepping
motors, respectively.

25 18. A lens control apparatus comprising:
a first lens for performing a magnification
operation;
a second lens for correcting movement of a focal
plane during movement of said first lens;

1 a stepping motor for moving said first lens to be
parallel to an optical axis;

 lens moving means for moving said second lens to
be parallel to the optical axis;

5 focused position storage means for prestoring a
focused position of said second lens with respect to a
discrete position of said first lens in accordance with
a discrete object distance;

10 focused position calculating means for calculating
a focused position of said second lens with respect to
a moving position of said first lens on the basis of
current positions of said first and second lenses and
information stored in said focused position storage
means; and

15 control means for controlling said stepping motor
to change a moving speed of said first lens when a
moving speed of said second lens exceeds a
predetermined value during movement of said first lens.

20 19. An apparatus according to claim 18, wherein
said control means controls said stepping motor to
change the moving speed of said first lens in
accordance with a distance between the current position
of said second lens and the focused position of said
25 second lens which is calculated by said focused
position calculating means when the moving speed of

1 said second lens exceeds a predetermined value during
movement of said first lens.

20. An apparatus according to claim 18, wherein
5 said control means controls said stepping motor to
change the moving speed of said first lens while the
moving speed of said second lens is kept at a
predetermined value when the moving speed of said
second lens exceeds the predetermined value during
10 movement of said first lens.

21. An apparatus according to claim 18, wherein
said control means changes the predetermined value in
accordance with the moving speed of said first lens.

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22. An apparatus according to claim 18, wherein
said control means changes the predetermined value in
accordance with the object distance.

20 23. A camera comprising:
a first lens for performing a magnification
operation;
a second lens for correcting movement of a focal
plane during movement of said first lens;
25 lens moving means for independently moving said
first and second lenses to be parallel to an optical
axis;

1 extracting means for extracting a high frequency
component from a video signal of a photographed object;
and

5 first moving condition switching means for
switching a moving condition of said second lens during
movement of the first lens so that a high frequency
component amount of the video signal changes.

24. A camera according to claim 23, wherein said
10 first moving condition switching means switches the
moving condition of said second lens on the basis of
the high frequency component of the video signal.

25. A camera comprising:
15 a first lens for performing a magnification
operation;
a second lens for correcting movement of a focal
plane during movement of said first lens;
lens moving means for independently moving said
20 first and second lenses to be parallel to an optical
axis;

extracting means for extracting a high frequency
component from a video signal of a photographed object;
second moving condition switching means for
25 switching the moving condition of said second lens so
as to increase or decrease a high frequency component
amount of the video signal on the basis of the high

1 frequency component amount of the video signal during
movement of said first lens; and
control means for controlling so that an angle
formed between a first synthetic vector between the
5 moving direction of said first lens and the moving
direction of said second lens for maintaining the
focused condition of said second lens during movement
of said first lens and a second synthetic vector based
on the moving directions of said first and second
10 lenses prior to switching by said second moving
condition switching means is set equal to an angle
formed between the first synthetic vector and a third
synthetic vector based on the moving directions of said
first and second lenses upon switching by said second
15 moving condition switching means.

26. A camera according to claim 25, wherein said
control means changes a magnitude of the angle formed
between the first synthetic vector and the second or
20 third synthetic vector during movement of said first
lens in accordance with a focal length.

27. A camera according to claim 25, wherein said
control means changes a magnitude of the angle formed
25 between the first synthetic vector and the second or
third synthetic vector during movement of said first
lens in accordance with a depth of field.

1 28. A camera according to claim 25, wherein said
control means changes a magnitude of the angle formed
between the first synthetic vector and the second or
third synthetic vector during movement of said first
5 lens in accordance with an object luminance.

29. A camera comprising:
a first lens for performing a magnification
operation;
10 a second lens for correcting movement of a focal
plane during movement of said first lens;
lens moving means for independently moving said
first and second lenses to be parallel to an optical
axis;
15 extracting means for extracting a high frequency
component from a video signal of a photographed object;
third moving condition switching means for
switching the moving condition of said second lens so
as to increase or decrease a high frequency component
20 amount of the video signal on the basis of the high
frequency component amount of the video signal every
time the high frequency component amount of the video
signal reaches a predetermined level value during
movement of said first lens; and
25 holding means for peak-holding the predetermined
level value in accordance with a change in the high
frequency component of the video signal; and

1 hold releasing means for releasing peak holding of
the predetermined level value.

30. A camera according to claim 29, wherein said
5 hold releasing means releases peak holding of the
predetermined level value when the moving condition of
said second lens is switched by said third moving
condition switching means.

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